Automated Signal Performance Measures Using SmartSensor Advance
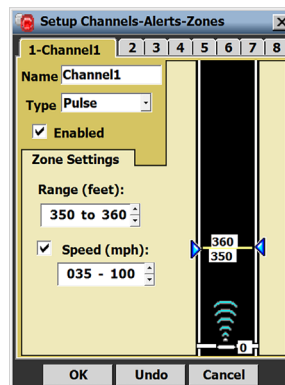
1. Select **Setup Channels-Alerts-Zones** from the SmartSensor Manager Advance main menu.

2. In the **Type** drop-down menu, set channel 1 to be a **Pulse** channel. The pulse channel will allow you to record counts that can be used for the automated signal performance measures for the arrival of vehicles depending on the intersection phase it is on.

3. Create a 10-ft. zone from 350 ft. to 360 ft. along the approach.

4. From the main menu, go to **Channels-Alerts-Zones** > **Setup Output Communication**. In the **Select trigger speed options:** section, set Port to **1** and Channel to **1**. The **Tag** field is used to identify which sensor or approach is sending the information.
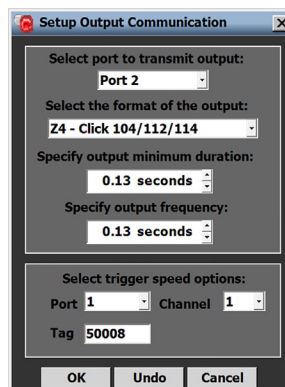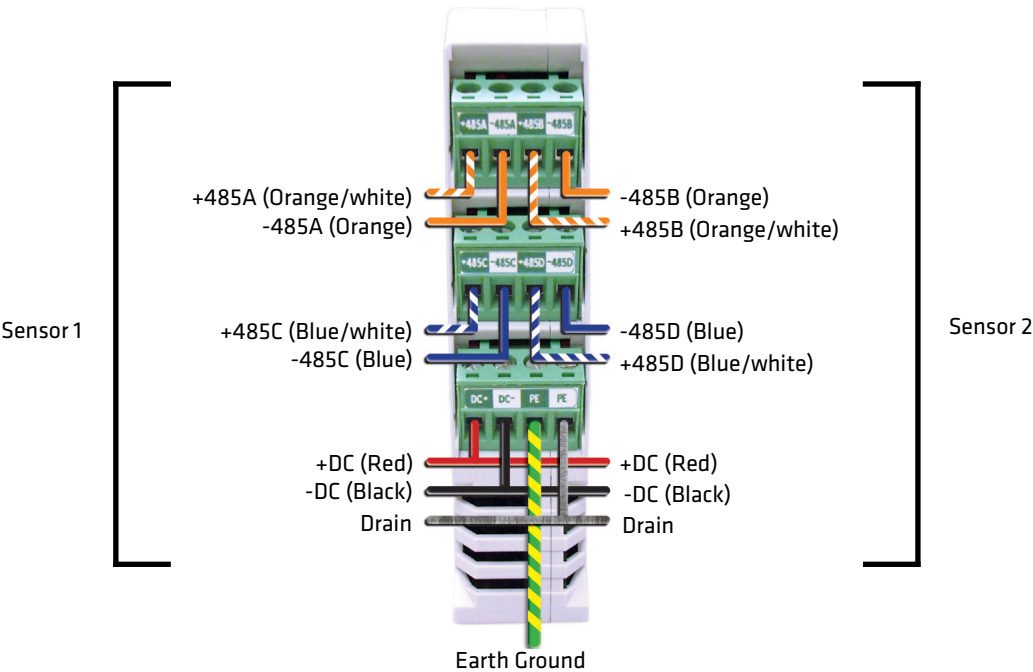

The SmartSensor Advance has an option to output the trigger speeds of the vehicles that pass through the approach as a HEX string that can be used to gather the vehicle speeds. The example above uses the same channel that is providing counts to the controller to output the vehicle speeds as they pass the 10-ft. zone.

The SmartSensor Advance still outputs contact closure data through port 2 to the controller either via rack cards, the Click 600, or the Click 650. However, in addition to this, port 1 and channel 1 are used for the trigger speed option. Usually, this trigger speed information is sent over a serial-to-Ethernet terminal server in UDP mode, with another service listening to the UDP messages in the Traffic Operation Center.
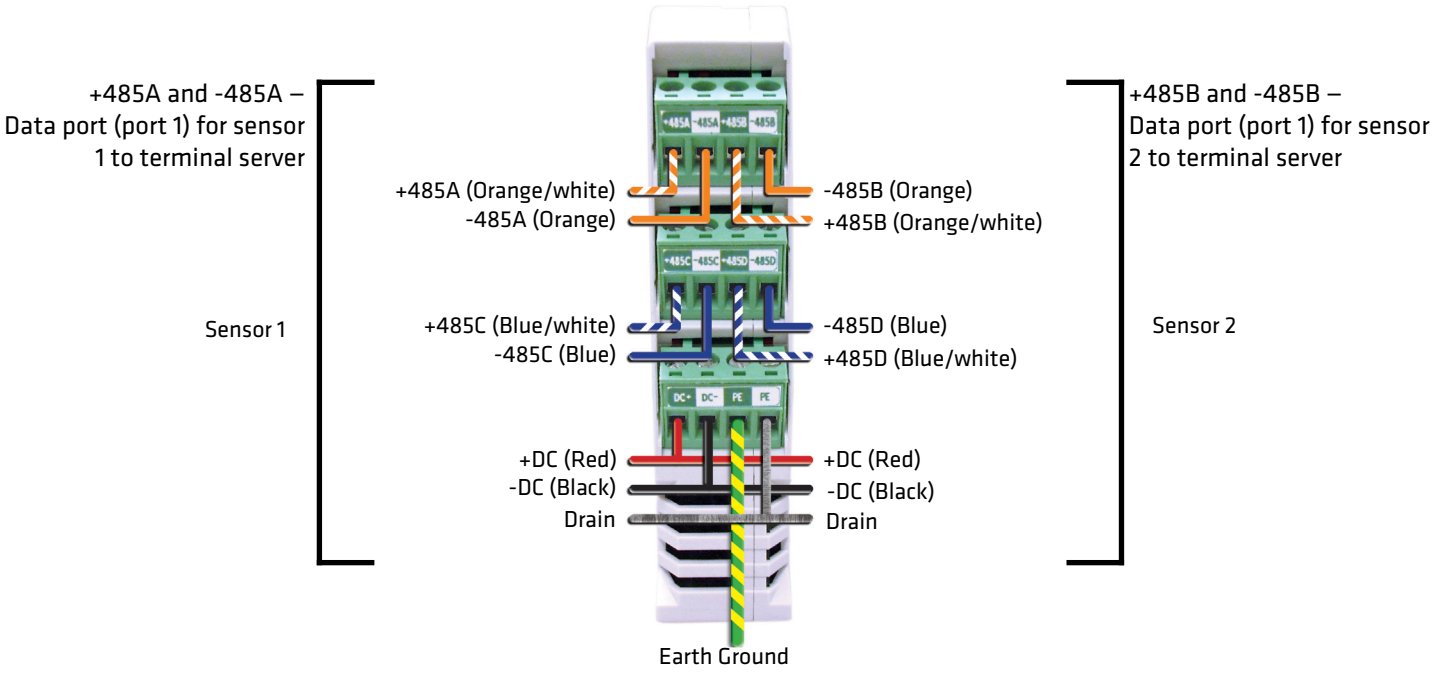
5. Wire the Click 222 in order to send the trigger speeds to the TOC. The goal is to wire the port the trigger speeds are coming from to the terminal server that will eventually send it to the TOC (next step). Each Click 222 has the capability of hosting two sensors per device. In this example, you configure the sensor to push the

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trigger speeds HEX string over port 1 (control port). The control port in the Click 222 is composed of blue pairs for each respective sensor.

Sensor 1

+485A (Orange/white)
-485A (Orange)

-485B (Orange)
+485B (Orange/white)

+485C (Blue/white)
-485C (Blue)

-485D (Blue)
+485D (Blue/white)

+DC (Red)
-DC (Black)
Drain

+DC (Red)
-DC (Black)
Drain

Sensor 2

Earth Ground

6. Connect to a terminal server. A terminal server with four serial ports can be used to send the trigger speeds to the TOC. After identifying the blue pair that corresponds to the respective sensor, wire from the control port to one of the serial ports in the terminal server. Make sure you look at the pinouts on the terminal server to see where each cable goes.

When wiring the Click 222, the RS-485 pair that is sending both the trigger speed packets and the contact closure data (port 2) will need to be wired to the terminal server device.

+485A and -485A –
Data port (port 1) for sensor
1 to terminal server

+485B and -485B –
Data port (port 1) for sensor
2 to terminal server

+485A (Orange/white)
-485A (Orange)

-485B (Orange)
+485B (Orange/white)

Sensor 1

+485C (Blue/white)
-485C (Blue)

-485D (Blue)
+485D (Blue/white)

Sensor 2

+DC (Red)
-DC (Black)
Drain

+DC (Red)
-DC (Black)
Drain

Earth Ground

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Setting the Bandwidth

Network bandwidth plays an important role in making sure the trigger speed information is received correctly. If you have low network bandwidth, you will probably want to separate contact closures from trigger speed packets to help avoid collisions and lost data. If you have high network bandwidth, you will be able to send contact closures and trigger speed packets simultaneously over the same port. The speed of the network allows the system to separate trigger speed packets and contact closure data. The settings in the figures below are recommended for networks using fiber or similar speeds and bandwidth capabilities.
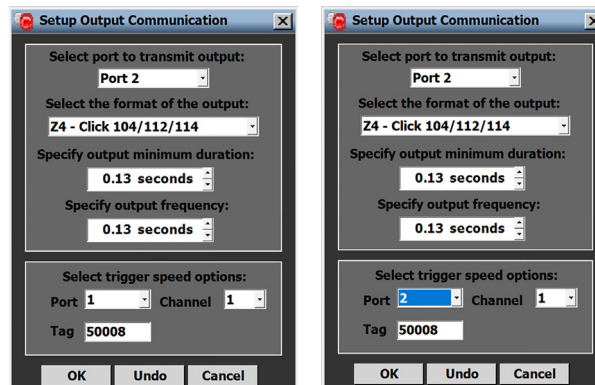
Warning. *When you are connecting to configure the sensor via a serial or TCP/IP connection over the control port, the trigger speeds are lost while the connection is active because port 1 (control port) is being occupied.*

Adding Dilemma Zone Protection
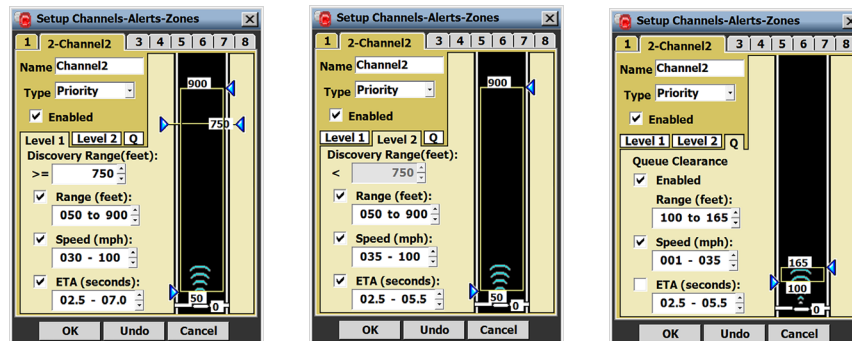
1. While in Channel 2, click on the number **2** tab at the top of the screen.

2. Using the **Type** drop-down menu, set Channel 2 to be a **Priority** channel.

3. Set Level 1 for high-priority vehicles by creating a zone along the entire approach and setting the ETA at **2.5 — 7.0** seconds.

4. Set Level 2 for normal-sized vehicles by setting the ETA at **2.5 — 5.5** seconds.

5. Click on the **Q** tab and create a queue reduction zone from 100—165 ft., or whatever range meets your needs.

To connect to contact closure rack cards, the Click 600, or the Click 65x, please refer to the appropriate documentation by visiting www.wavetronix.com/support.

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